

Workshop Wednesday

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Workshop Wednesdays are a result of our research, activities – both the successful and unsuccessful activities– discussions with colleagues, conferences, and just plain luck. We'd like to thank all the students who took part in these activities, and we hope that they remember "there's always room for improvement – it's the biggest room in the house." *Louise Heath Leber*



Workshop Wednesdays in Elementary Algebra

Developmental mathematics courses are difficult. Around the nation, students struggle to successfully navigate their college's developmental mathematics curriculum (NCES, 2003). Students struggle to put effort into courses they find extremely hard, void of interesting context and often not applicable to their desired career.

Our struggle is ever-present and never-ending. The following resources and ideas are the product of an ongoing effort to improve our students' experiences. We have talked with students. We have read books, attended conferences and debated with colleagues. We are looking for the answers to our questions,

- How can we improve our students' success and motivation in mathematics?
- What is affecting our students' effort?
- What skills and attributes do our students need to be successful in mathematics at the college level?

Much of the structure and content of Workshop Wednesday labs comes from research into Self-Regulated Learning (SRL). In educational psychology, social cognitive theory describes the factors and effects of motivation and effort. SRL describes how a student self-monitors and modifies their learning strategies in their social learning environments. Research has found that developmental education students often lack important SRL attributes (Ley & Young, 1998).

The goal of this integrated curriculum is to produce efficient, effective, excited, and appropriately focused students. In many ways this training could follow the training that many businesses provide for their employees.

The importance of such a curriculum or program is that the student be afforded the opportunity to self-realize their ability to be successful in mathematics through experiencing the effect of possessing and applying expert learning skills.

Sources:

National Center for Educational Statistics (NCES). 2003. *Remedial education at degree granting postsecondary institutions in fall 2000* nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2004010.

Young, D. B., & Ley, K., (1998). Self-regulation behaviors in underprepared (developmental) and regular admission college students. *Contemporary Educational Psychology* 23, 42-64

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- *It's all about you!*
- *Classroom Assessment Techniques (CATs)*
- *Writing Prompts*

Workshop Wednesday Lab Structure

Current format of most Workshop Wednesdays at Everett Community College:

Student Reflecting Before Workshop

Students are asked to respond to questions before they attend a workshop. These questions are posed to the student as a worksheet to be completed or a question posted on an online discussion board.

Collaborative Discussion-Based Workshop

In groups, random or otherwise, students are asked to work through activities or discussion questions that build off of the questions they contemplated before attending the workshop. Case studies, research results, or reflective questions are example of resources that can help these groups initiate a productive discussion.

Classroom Debrief

The instructor leads the class in a debrief of the day's topic. Often, to instigate student participation, a short presentation or lecture is given. An example of such a presentation would be to present a random sample of the student responses to the preparation questions.

The workshop wednesday curriculum could be implement in a developmental mathematics course in many different formats:

- An entire class period or part of a class period once a week (the method currently used at EvCC).
- In an online format, where students respond to instructor prompts and their classmates' response.
- As informal activities throughout the quarter/semester, time permitting.

Workshop Wednesday #1 – Goal Setting

Student Prep: Complete one of the following worksheets. These worksheets prompt students to develop/formalize their own reasons for being in school and for being enrolled in mathematics.

Collaborative Lab: The following directions are handed to groups at the beginning of the lab.

1. Find your group (obviously if you are reading this you have completed the first step).
2. Write your name on the grade sheet for your group and write **yes or no** in the box that asks whether you completed the worksheet before class.
3. Beginning with the person who's birthday is closest to today, go clockwise around the group with each person sharing:
 - a. Their name
 - b. The reason they are in school at EVCC and specifically why they are enrolled in Math 81.
 - c. The most important goal they have for the quarter.

This is a chance for you to get to know one another in your group. If you would like to talk about something not on the list above feel free! Remember to be equitable with the group's time. Full participation in this part requires that you not only talk about yourself, but also listen well (even ask questions if you are feeling froggy).

Let your instructor know when you have completed the first 3 steps before continuing...

4. Answer the following question (for each person) below the line on this worksheet:

"What, specifically and realistically, are you going to do this week to work toward the goals you have for this course?"

Debrief: Using the "What about goals?" document below, discuss the reason for having goals and the attributes of powerful and useful goal setting. Ask students to create one realistic, measurable and specific goal for the quarter/semester.

Resources: Workshop Wednesday #1 Prep

*Please give brief, but **specific** answers.*

Why are you enrolled in Math 81 at EvCC?

What is your plan for being successful in Math 81 this quarter? How are you going to ensure this happens? Be specific in your answers.

Describe two goals that you have for this quarter.

Resources: First Day of Class, 2010

Dear Me:

The reason I'm taking Math 81 in Fall 2010 is:

One of the challenges I think I'm going to face this quarter in Math 81 is:

One thing that I plan on doing to overcome that challenge is:

Two goals that I'm setting for myself between now and the end of the term are:

1.

2.

How did I do this term?

Sincerely,

Resources

What about goals?

Goals provide students a set of personal standards by which they can judge the outcomes of their learning attempts. These standards also have the effect of motivating and encouraging students during their learning as they are able to more accurately gauge the progress of their understandings (Bandura, 1986).

Performance Goals: Performance goals refer to goals set with a focus on the **outcomes** of educational efforts (Hagen & Weinstein, 1995). Examples of performance goals in mathematics may include desired course grades, homework scores, and exam scores.

Mastery Goals: Mastery goals refer to goals set with a focus on the learning or mastery of concepts (Hagen & Weinstein, 1995). Goals of mastery are goals for certain **levels of understanding** in specific mathematical concepts or comfort in applying new mathematical procedures to real life situations.

A mastery goal has the effect of prompting students to seek challenges instead of avoiding them and motivates them to put forth more effort into their learning (Hagen & Weinstein, 1995). Also, the evaluation of a student's progress towards completing mastery goals is not dependent on the assessment of homework and examinations. These types of goals empower students to accurately self-monitor their progress towards their goals and this monitoring is not dependent on the evaluation of someone else (i.e. - the instructor), as is the case with performance goals.

Characteristics of effective goals

Measurable – To be prepared to accurately evaluate one's progress, goals must have a sense of measure to them. Example "I will feel comfortable with and understand each type of problem presented in section 2.5" or "I will be able to complete any type of fraction problem whether it is addition/subtraction or multiplication/division."

Proximal – Long-term and short-term goals are both important but proximal (short-term) goals offer themselves to evaluation more easily and therefore are more motivating.

Specific – This aids with a goal being measurable. Specific goals provide very strict direction to your education.

Realistic – If you can't reach a goal that you set for yourself you will begin to view your goals as unattainable references and therefore sapping the usefulness of setting goals in the first place.

Sources:

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. New Jersey: Prentice-Hall.

Hagen, A. S., & Weinstein, C. E. (1995). Achievement goals, self-regulated learning, and the role of classroom context. *New Directions for Teaching and Learning*, 63, 43-55.

Workshop Wednesday #2 – Exam Prep

Student Prep: Students respond on an online discussion forum to the following prompt,

- 1) How did/will **you** prepare for this week's math test? (at least two sentences)
- 2) Why do you use the method you described above?
- 3) In your opinion are the following **Myths** or **Truths**:
 - a) Eight hours of sleep the night before the exam is extremely important (so important it makes sense to sacrifice study time for sleep time).
 - b) Students talk about "Blanking Out" during an exam. This is actually an excuse used by under-prepared students who are looking for something besides themselves to blame for a bad test.

Collaborative Lab: Students are asked to quickly share with their group members about their exam preparation techniques. Most importantly, how they have been preparing for *this* week's exam. If time allows, groups report out a "best practice" for their group. Students also have time during this section to discuss possible distractions in life that prevent them from using one of the methods described.

Debrief: Compile a sample of student responses to the writing prompt. Present this compiled list to the class, read through any interesting, useful, or funny responses. Share thoughts on exam preparation with students using the "Helpful Hint" document below. Remind them that these thoughts are based on research and authors that have spent a lot of time investigating this subject. Spend time talking about Test Taking Anxiety and how it can be managed. This conversation originates from question 3b of the discussion board response.

Resources: Workshop Wednesday #2 – Exam Prep

Test Preparation Checklist

Type of Exam:

What I need when I study:

Multiple Choice _____

Textbook(s) _____

True/False _____

Notes _____

Matching _____

Instructor's Study Guide _____

Completion _____

Worksheets _____

Identification _____

Past Exams (scoops) _____

Essay _____

Supplemental Readings _____

Lab work _____

Calculator _____

Problems _____

Pen, pencil, extra paper _____

Other _____

Other _____

Will I study alone or with a study group?

_____ ***Alone*** _____ ***Group****

*Make sure your group is more study than social. Set an agenda and stick to it.

Are there any study/review sessions the instructor will lead before or after class?

___Y___N

If Yes, when and where? _____

When and where will I study? Make a plan – and stick to it!

Date/Time/Place: _____

Date/Time/Place: _____

Date/Time/Place: _____

Mark these dates in your planner.

Prioritization: What topics will the exam cover?

Topic	I really know this stuff	I am not too sure about this stuff	I have no clue about this stuff	Topic reviewed at least once
1				
2				
3				
4				
5				

Predict some test questions (this will force you to focus on key concepts the instructor has been stressing).

Concept:

Test Question:

1.

2.

3.

4.

What I need for test day:

Pens, pencils, extra paper (graph, lines, etc)

Calculator

Notes – can I use my notes during the test?

Textbook – is the test open book?

Ruler

Other

Resources: Workshop Wed #2 – Exam Prep

Helpful Tips

On Preparation:

- You will be asked to complete problems yourself, not watch someone else complete them.
- If you practice sprinting, what makes you think you can run a marathon?
- Sleep = Organization of Knowledge. Problem-solving requires a *fresh* state of mind.
- New knowledge, to be useful, must be learned one full day before an exam.

On Test-Taking:

- Be efficient! Don't perform problems in order listed on exam!
- DATA DUMP!
- Using a pen or erasing massive chunks of work is a waste of time.
- "Fight or Flight" is real and manageable.

Relaxation Techniques to manage test anxiety (must be practiced to be useful):

The Turtle

- Sit up straight
- Let chin fall to chest as you exhale
- Inhale, move head back slowly as though you are trying to touch the back of your neck with head
- Pull shoulders up to ears
- Release

Countdown

- Count backwards from 10
- Take a breath before each number
- Say each number silently as you exhale
- *Notice that with each number you relax and slow down slightly*
- Add imagery if necessary (ie. decreasing on an Anxiety Scale)
- At end, inhale and count to three to resume

Workshop Wednesday # 3 Prep - Note Taking

Student Prep: Students respond on an online discussion forum to the following prompt,

Do you take notes in your classes (including math class)? If yes, why? How do they help you? If not, why not?

Do you use a particular method? Where did you learn this technique? Would you recommend it to other people?

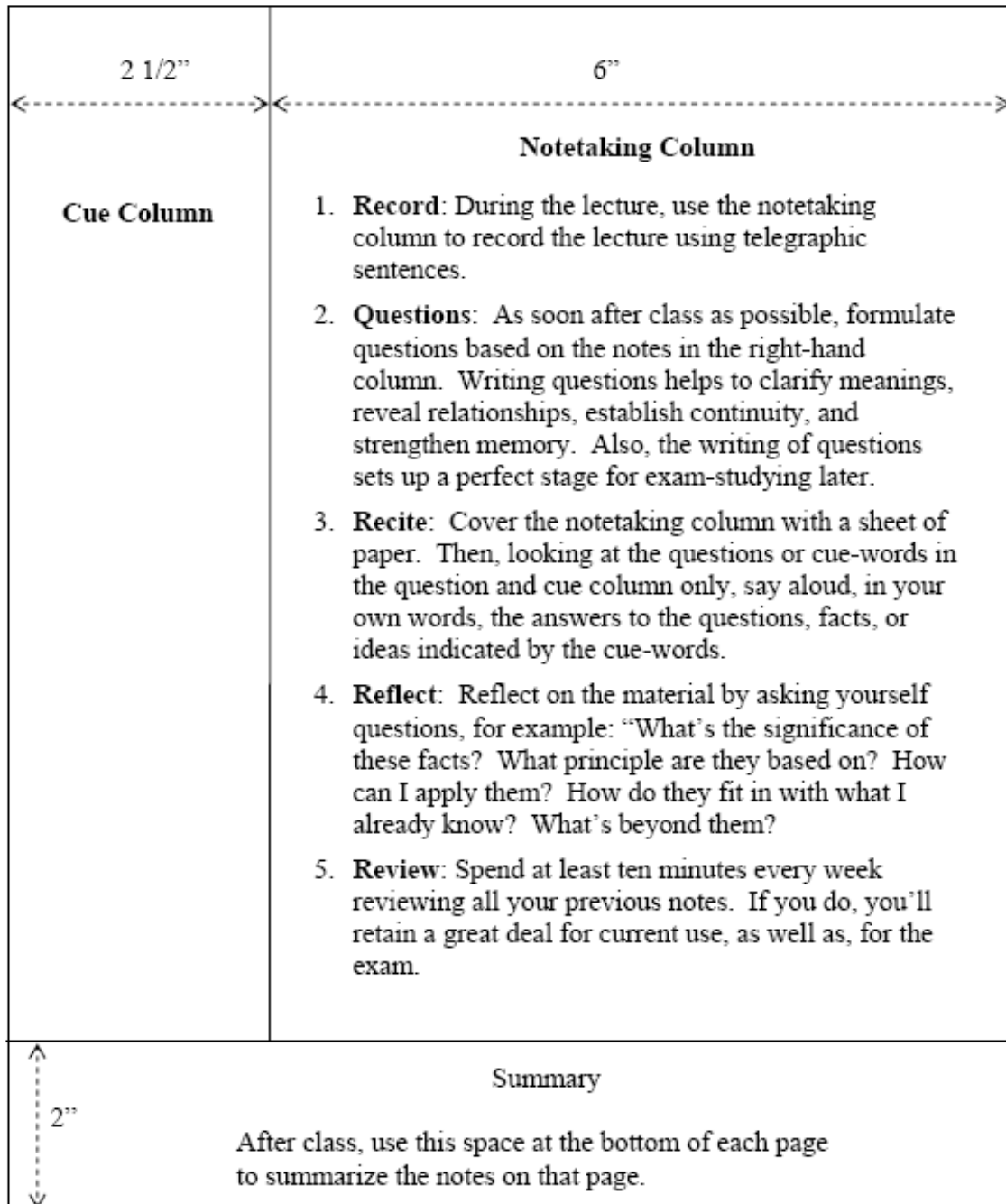
Why do you think your instructors want you to take notes?

Collaborative Lab: Ask students to share examples of their note taking with other students. Ask them to rate their own notes from 1 - Terrible, incomplete, useless notes to 10 – Perfect, clear, useful notes. Ask students to specifically talk about what exactly they write down during class and what they find the most useful.

Debrief: Share a couple note taking systems with students. Encourage them to try one or more, but to add their own personal style to their note taking. Display student response to the writing prompt and the “Tips on Note Taking” document below. After presenting this information, a discussion about final thoughts on note taking should wrap up the lab.

Resources: Workshop Wednesday # 3 – Examples of Note Taking Systems

The Cornell System



Adapted from How to Study in College 7/e by Walter Pauk, 2001 Houghton Mifflin Company

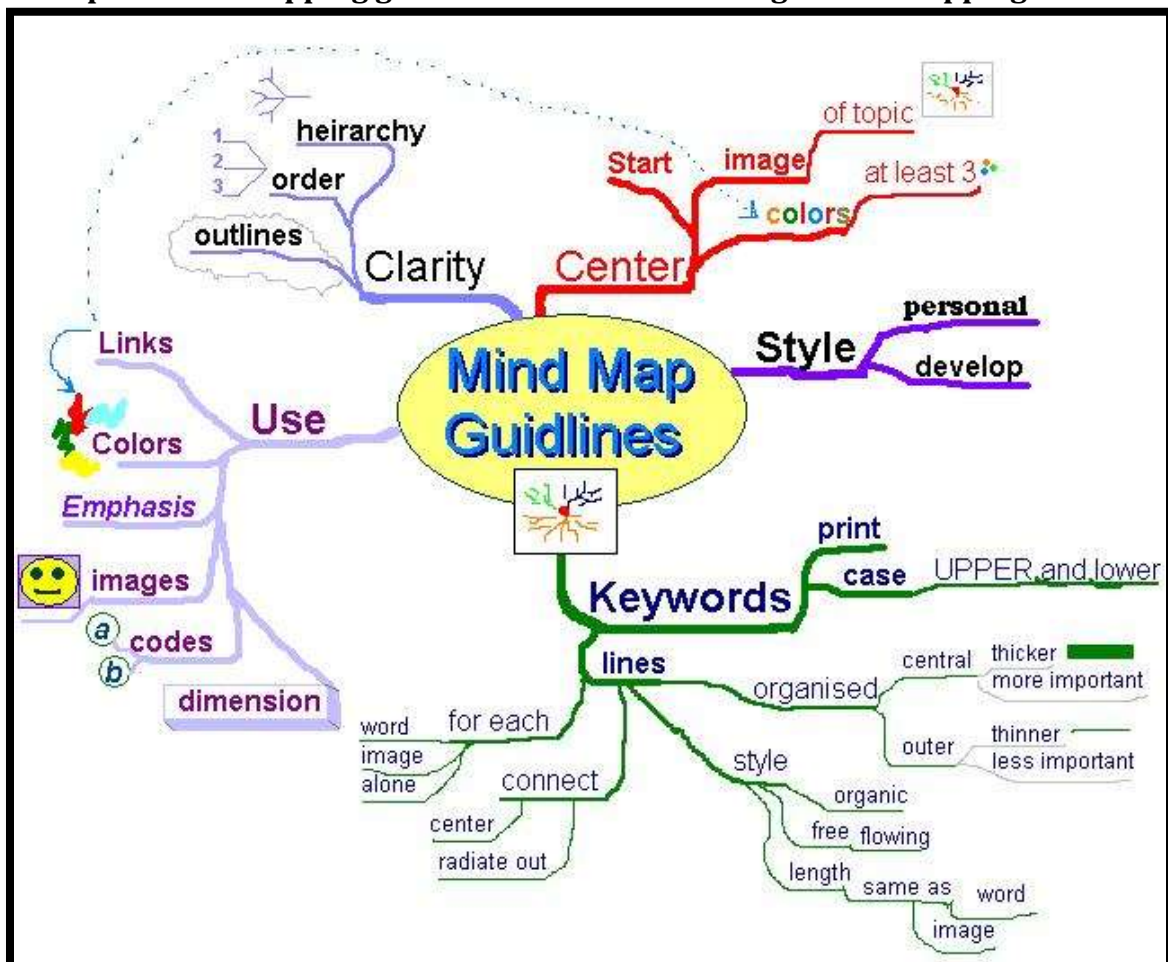
Resources: Workshop Wednesday # 3 – Examples of Note Taking Systems

Mind Mapping

Mapping is a method that uses comprehension/concentration skills and evolves in a note taking form which relates each fact or idea to every other fact or idea. Mapping is a graphic representation of the content of a lecture. It is a method that maximizes active participation, affords immediate knowledge as to its understanding, and emphasizes critical thinking.

This format helps you to visually track your lecture regardless of conditions. Little thinking is needed and relationships can easily be seen. It is also easy to edit your notes by adding numbers, marks, and color coding. Review will call for you to restructure thought processes which will force you to check understanding. Review by covering lines for memory drill and relationships. Main points can be written on flash or note cards and pieced together into a table or larger structure at a later date.

Example: Mind mapping guidelines described through mind mapping.



Source: <http://commons.wikimedia.org/wiki/File:MindMapGuidelines.JPG>

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Resources: Workshop Wednesday # 3 – Tips on Note Taking

- **Consider the structure of your notes.** This structure WILL change for you as you progress through college. You may as well be mindful of this change.
- **Consider what you write in your notes.** When you take notes, you must transfer attention to and from your instructor's conversation.
- **Don't only write down everything that comes out of the instructor's mouth or is written on the board.** Note taking is essentially a conversation you are having with your future self. Be mindful of this as you take notes.
- **Consider annotating your notes in a different color.** This side conversation with yourself may be essential in a week or month.
- **Consider a method to review your notes.** Concept Mapping or Outlining make notes truly useful. If you don't review your notes, are they truly useful?
- When given the opportunity, **do your own work in your notes**, but leave room for the instructor's example if it is significantly different.
- **Your book has many of the formulas and similar examples.** If a book page is referred to, or if you have your book next to your, mark your book, don't spend time writing it down (that book did cost ridiculous amounts of money in the first place).

Workshop Wednesday # 4 – Studying (Collaborative Lab)

DIRECTIONS: Please take turns reading each section below. After each section, read the discussion question that follows. Share honestly with each other, offer ideas that you use when studying, and debate as to whether the section describes something that you may actually employ in your own studies or not.

Control of Task and Setting

Decisions you make about when and where you study have a significant effect on your productivity. Research explains that you should consider:

- **Studying at the same place every day.** Not just ‘in the library’ or ‘in Parks MPR’ or ‘at home’, but exactly the same spot. Choose a table or desk and chair that you will use only for studying. Consider this location your *study area*. Once you have decided on a location, do not do anything but study at this location. Don’t eat there, play games, search the internet, or anything else not productive to your learning. Also, don’t try to study in front of the T.V. (or internet), you are only wasting your time. Even if you think your brain is multitasking, it isn’t. Your brain is much more productive when focused on one thing at a time.
- **When you study.** The absolutely most effective time to study is as soon after class as possible. Psychologists have shown that most forgetting occurs right after someone has learned something new. The more time you spend separated from material presented in class the harder it will be to understand your homework. Also, consider what time during the day you are most likely to be the most effective. Some people have a hard time concentrating in the evenings and some people find it impossible to focus in the morning.

When and where do you study? Is it the same place each time?

- Noise, lighting, temperature, hunger, amount of sleep, and distractions. Each of these affects your thinking and focus. For example, research has shown that low constant noise (a fan or classical music station) can greatly help you stay focused while studying. How much these factors affect your learning varies from person to person. Most importantly is that you are aware of these factors and have placed yourself in situations where you have control over them.

What types of distractions do you have this quarter that keep you from being productive when you study?

Control of focus and motivation

After you have decided on the environment in which you study, you must decide **how to study**.

Describe how you study for your math class. What do you do if you get stuck?

Research indicates that:

- **You should study your hardest subjects first!** Your brain loses productivity as you study and is sharpest during the first part of your study session.
- **You should take study breaks.** Your brain physically tires after about thirty minutes of learning new material. This often leads to frustration and lack of focus. Taking study breaks allows your brain to recharge and calm down. Walk around the block, get some water, review your goals, or eat an orange. Again, do not turn on the T.V. or begin searching your favorite site on the internet (yes, that includes Facebook, Myspace, and YouTube), these are habitual activities that can steal all your study time before you know it.
- **Develop positive self-statements.** These are statements often written on a note card or in a binder to remind yourself of your goals and why you are studying in the first place. An example may be "If I am able to stay focused during my studies I will be successful in my math class **and** accomplish my dream of becoming a(n) (insert future occupation here)".
- **Do not dwell on one question for too long.** If you become stuck, reread the directions to the problem, look for examples in the section, and write yourself a note regarding why the current problem is harder than the previous problems. Move on or spend your time reviewing past problems.

Sources

Corno, L., & Trawick, L. (1995). Expanding the volitional resources of urban community college students. *New Directions for Teaching and Learning*.

Nolting, P. (2002). *Winning at Math*. Bradenton, Florida: Academic Success Press, Inc.

Bass, A. (2008) *Math Study Skills*. San Francisco: Pearson.

Workshop Wednesday # 5 - Self-Evaluation

Student Prep: Students answer the following questions on their own paper. Students are asked to bring their responses to the Workshop Wednesday lab.

What were your goals for Fall Quarter?

Now that we are four weeks into the quarter, how would you rate yourself on a scale of 1 – 100 on your progress towards those goals?

What specifically has helped you to achieve your goals?

What specifically has hindered you as you have attempted to make progress towards your goals?

What is your current grade in the course (see back)? Is it the grade you hoped to have? Why or why not?

Collaborative Lab: Students talk in groups about their responses to the questions above. Students talk about the calculation of their grades and are asked to answer questions about what grades they can still obtain (a nice, useful, and interesting application of algebra). The concept of goal setting and evaluation is revisited from the first Workshop Wednesday lab.

Debrief: This is a good time to reflect on the quarter for the students (and the instructor). Help them keep up their motivation and effort by asking them to revisit why they are in school, who it affects, and what they need to do to be successful. Since this lab is very introspective and personal a full class debrief may not make sense for your students.

How to compute your grade:

Exam 1	your grade _____	possible grade = 100
Exam 2	your grade _____	possible grade = 100
Quiz 1	your grade _____	possible grade = 50
Quiz 2	your grade _____	possible grade = 50
HW 1	your grade _____	possible grade = 25
HW 2	your grade _____	possible grade = 25
WW #1	your grade _____	possible grade = 5
WW #2	your grade _____	possible grade = 5
WW #3	your grade _____	possible grade = 5
WW #4	your grade _____	possible grade = 5
	Your total _____	possible total = 370

Compute: $\frac{\text{Your total}}{370} = \underline{\hspace{2cm}}$ This is your current grade.

Are you happy with your current grade? What are you willing to do to improve it if you aren't happy?

Workshop Wed #6 – Comprehension Monitoring

Concept: During this workshop students spend most of their time thinking about application problems. While attempting to solve application problems collaboratively, students are asked to complete a Comprehension Monitoring Protocol for each problem. This self-monitoring technique attempts to help students develop their meta-cognitive strategies while problem solving.

Student Prep: Complete several application problems (take-home worksheet, assigned homework, etc) before workshop.

Collaborative Lab: Provide students with list of application problems and ask each group to complete specific problems from the list. Inform students the goal of the workshop is for them to complete a comprehension monitoring checklist for each problem (I do this by telling them that I will be grading their ability to completely fill out the checklist for a specific number of problems). Students will want to focus on getting the solutions quickly; it may take some work to get them to focus on the checklist. As you end the workshop, debrief using as many problems as possible and attempt to keep the conversation focused on the thinking skills need to tackle the application problems.

Debrief: Describe the utility of using the comprehension monitoring checklist or a similar list to organize your thoughts while problem solving. The instructor could provide a short lecture on meta-cognition. Ask the students what types of questions they would ask themselves if they were going to create such a checklist. Students may even be asked to create a personalized problem solving, meta-cognitivelist for themselves.

Resources: Comprehension Monitoring

Checklist Problem #: _____

1. Do you understand what the problem wants you to find? If so, describe it here.

2. Do you understand what steps you must take to solve the problem?

3. Do you understand what relationships or equations are required?

4. Do you understand how to do the mathematics involved?

5. Do you seem to be following a strategy that will lead you to success?

6. If you are not being successful, what can you do differently? What do you need to understand that you do not know?

7. Does your answer make sense? Is it reasonable? Can you double check the answer by using an alternate procedure?

Adapted from: Schurter, W.A. (2002) Comprehension monitoring: An aid to mathematical problem solving. *Journal of Developmental Education* 26(2), 22–33.

Resources: Workshop Wednesday #6 - Mixed Applications

- 1) A men's shop purchases a total of 60 shirts for \$929.75. If some were dress shirts costing \$17.50 each and the rest were sport shirts costing \$14.25 each, how many of each were purchased?
- 2) Kali left school and traveled toward her friend's house at an average speed of 40km/h. Matt left one hour later from the same house and traveled in the opposite direction with an average speed of 50 km/h. How long after Matt departs are Kali and Matt 400 km apart?
- 3) John's last paycheck for the last two weeks, before taxes, was \$1141.50. John's pay is based on two different pay rates. His normal hourly wage is \$15 per hour, but on city jobs he earns prevailing wage which is \$27 per hour. If he worked a total of 52.5 hours during the pay period, how many hours did he work at prevailing wage?
- 4) You are selling tickets for a musical at your local high school. Student tickets cost \$5 and general admission tickets cost \$8. If you sell 500 tickets and collect \$3475, how many student tickets did you sell?
- 5) Jose and Rob are roommates. Jose left the house and drove towards New York City at an average speed of 40km/h. Rob left home some time later driving in the same direction at an average speed of 48km/h. After driving for five hours Rob caught up with Jose. How long did Jose drive before Rob caught up?
- 6) At last weekend's farmers market, Jackie's Jellies sold Snohomish Strawberry Jelly and Marysville Marmalade. They sold twice as many Marmalade jars as they did Strawberry Jelly jars and made in revenue for the weekend. How many Snohomish Strawberry Jelly jars did they sell?

Resources: Workshop Wednesday # 6 - Mixed Applications (cont.)

- 1) The Cheaper-Than-U car rental company charges costumers a daily rate of \$35 to rent a Jeep, plus \$0.15 per mile travelled. If a customer rented a Jeep for one day and was charged a total of \$75.95, how many miles did they travel?
- 2) In order to prepare for an upcoming triathlon, Frank trained on an 81-mile course by jogging (at a pace of 10 miles per hour) to his bike and then riding his bike (at a pace of 16 mph) the rest of the course. If Frank completed this training in 6 hours, how far was the biking section of the training?
- 3) Jim has 40 coins in his pocket (nickels and dimes only) with a total value of \$3.10. How many of each type of coin does he have?
- 4) Sally and Vanessa live 32.5 miles apart. Sally leaves her house on her Segway, heading towards Vanessa's house, at 5 mph. Vanessa leaves her house two hours after Sally, riding her horse at a rate of 13 mph, heading towards Sally. How long after Vanessa leaves will she run into Sally?
- 5) Wesley is trying to get home for Christmas, which is 300 miles from this apartment at WSU. His plan is to drive to a bus station (at an average rate of 55mph) and take the bus the rest of the way home. If the bus ride covers 135 miles of the trip, how long did it take him to get to the bus station?
- 6) The Everett Ballet has sold out its season opening performance. It has two ticket prices, \$15 for general admission and \$20 for balcony seating. They ended up selling three times as many general admission tickets as balcony tickets. If they brought in \$16,250 in revenue for the performance, how many of each did they sell?
- 7) Jessica went on a spending spree at express.com. They were having a clearance sale on all of last year's tops. The sale priced all of the shirts at either \$6 or \$13. If Jessica was able to buy 14 tops for \$147, how many did she buy at each price?

Workshop Wednesday #7 - Advising

Student Prep: Students are asked to respond to the following prompt on an online discussion board,

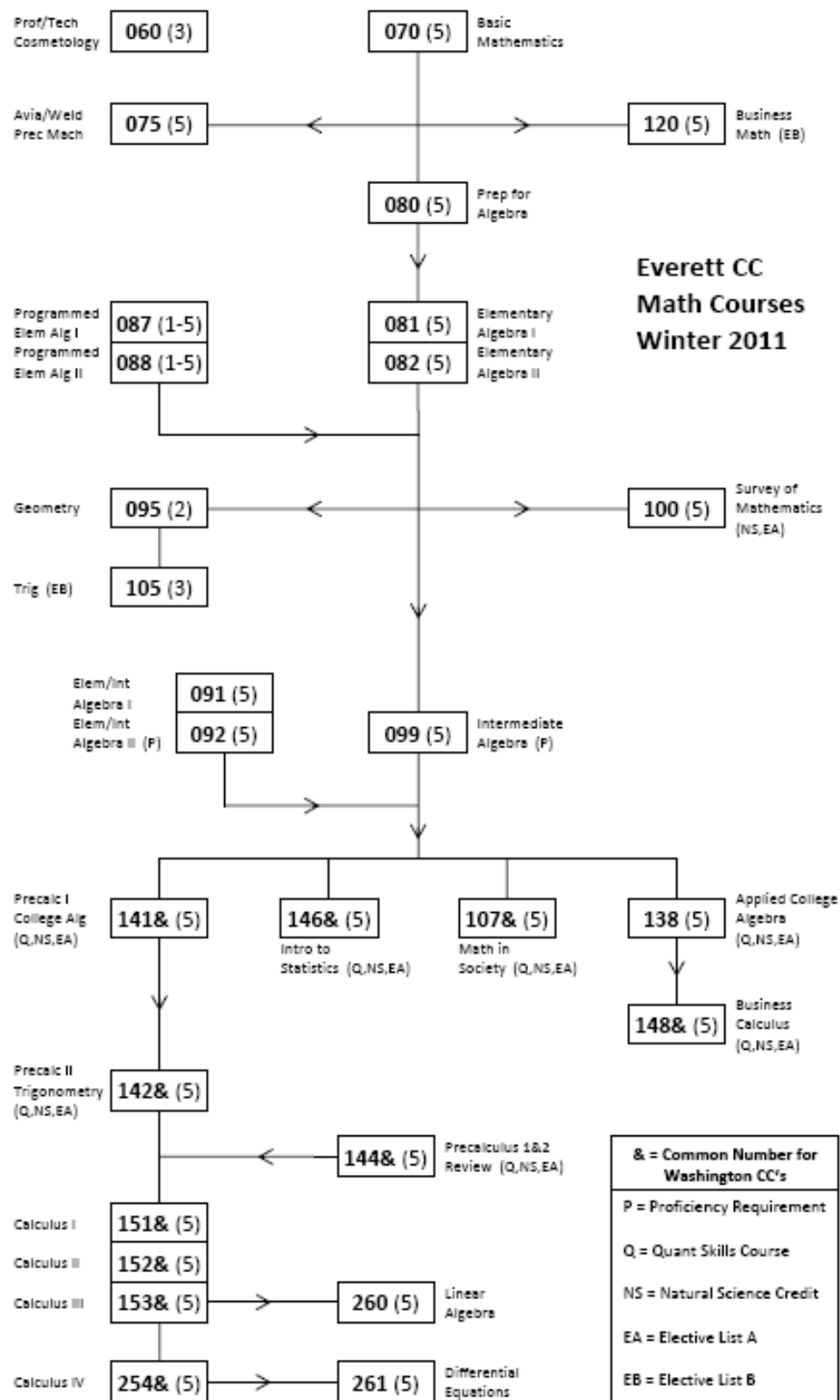
NOTE: Even if you are not sure about the following questions "I don't know" isn't good response. Answer with your best thought of what you would like to do with your education.

- 1) What degree/certification are you working towards?*
- 2) What are the math requirements of that degree/certificate?*
- 3) What is the next math class that you should take based of question #2?*

Collaborative Lab: Groups are given the school's course catalog. Using this resource and the groups understanding of the math sequence, they are asked to make a visual flow chart of the mathematics sequence. This flow chart should highlight the different paths of the group members and include important questions the group has unresolved.

Debrief: As a class, ask the students to describe the developmental mathematics sequence at your school. Answer any questions that students may have. Describe the different paths students take, especially the differences between the 100-level mathematics courses.

Resources: EvCC Math Flowchart



Workshop Wednesday #8 – Final Exam Review / Debrief

Concept: This workshop is held during the last Wednesday of the quarter. Students work together to form a study plan for the final exam. Students are also given a chance to reflect on their progress in math and to look towards their next math class (if they have another to take).

Student Prep: Students are asked to define a realistic and powerful plan for preparing for the final exam. In order to help them with this effort, students are directed to the following online resources,

- <http://www.coolmath.com/finaltip.htm>
- [http://salsa.missioncollege.org/mss/stories/storyReader\\$28](http://salsa.missioncollege.org/mss/stories/storyReader$28)
- <http://www.simpson.edu/hawley/study/finals.html>

Collaborative Lab: Students share their findings from their online research and share their study plans with each other. Students are asked to justify decisions they made in their study plan. After sharing is finished, the group has the task of reporting back to the class with what they feel are final exam review “best practices”.

Debrief: This is an opportunity for the instructor to remind the students that a cumulative final exam is a chance for them to organize everything they learned from the quarter in preparation for their next math class (or other classes which will use the mathematics they learned this quarter). This focus might also help students manage their efforts as their quarter winds down. As this is the last lab of the quarter, this is also an opportunity for students to share their thoughts about Workshop Wednesdays. This final debrief has helped the developers of Workshop Wednesdays modify the curriculum to better suit the needs of the students.

Why use a CAT (Classroom Assessment Technique)?

We are using this as a formative assessment. The point is to customize classroom instruction to benefit the students in our class, to maximize the minutes in class to the greatest benefit. That part is for the student. For us, we need to help students to develop the capacity to ask questions. If we use this particular CAT on a regular basis, (1) it's less threatening, (2) they begin to reflect on their learning, and (3) they tend to get better about articulating what they know AND what they don't know. Students will always use prior knowledge in the formation of their response. This formative assessment shifts the attention to what students are saying.

Feedback form

1. Topic of the day
2. Which CAT did you use?
3. How did the students react?
4. How did this inform your practice?



MINUTE PAPER

Directions: In a single well-constructed sentence, provide the following information to these questions:

What was the most important thing you learned from today's lesson?



What important question remains unanswered?



MUDDIEST POINT

Directions: As specifically as possible, complete the following statement:

After today's lesson, I am ***still*** confused about:



DOCUMENTED PROBLEM SOLUTIONS

Directions: On the left side of this sheet, solve the problem using the techniques you have learned in class. On the right side of the worksheet, explain the reasoning that you used to reach your solution in a step-by-step approach. For example, you might say: I used the distributive property to simplify.”

1. Problem:

Documentation

Step 1:

Step 2:

Step 3:

Writing Prompts

Each week you will be asked to write a brief response to a question or statement I will pose to you. Some will be content related, some will be about study skills or test strategies, and some will be more general. I will respond to each paper with written comments and return them in your group folder.

Writing Prompt 1:

Complete the following sentences:

I love math because...

I hate math because...

I think math is important because...

Writing Prompt 2:

Describe your experiences and attitudes about using a calculator, and tell me what kind of calculator(s) you have used. Did you use a calculator in previous math classes? Did it help or hinder your understanding of math? Why do you think calculators are not allowed in Math XX and Math XX? How do you think instructors feel about this rule?

Writing Prompt 3:

How much time per week have you spent studying for this course? Do you think it is enough time at this point, and if not, how will you change that?

Writing Prompt 4:

How have you prepared for math exams in the past (previous classes at EvCC or in high school)? How did you prepared for the first exam in this class? What do you plan to do differently to prepare for the next exam? **Be specific** in describing your plan. Did you find the Exam Debrief helpful? Why or why not?

Writing Prompt 5

Name **at least one thing** the instructor is doing in this class that is helping you to be successful. AND name **at least one** thing that the instructor is doing that is causing you problems in this class. OR what is the instructor NOT doing that would really help? Be specific in your comments.

Writing Prompt 6

Discuss your reaction to your performance on your exams so far. Was it what you expected? Better? Or worse? If it was worse, can you see patterns in your errors, or identify the cause of your poor performance? If it was better, pat yourself on the back and tell me so! Describe whether you are satisfied with your performance.

Writing Prompt 7

Write a letter of reference for yourself from the instructor's point of view. Address issues such as attendance, teamwork, attitude, etc. Begin your letter:

To Whom It May Concern:

I am writing a letter of reference for (your name here) who has applied for a position in your company. I believe you should consider this person as a good hire because...

Be **very specific** in your comments about the above attributes. You must list at least five (5) attributes that would make you a good employee. **Would you want to hire yourself?**

Writing Prompt 9:

Write a letter to a student who might be starting this class in the next term, telling them **at least 5** things they need to do to be successful **in this course with this instructor** or with any other instructor. Also list at least 5 things a student needs to be successful in **any college level class**.

Writing Prompt 10:

Looking back over the quarter, what are the most important things you have learned about being successful in math? What are the most important things you have learned about being successful in college? How have you changed since taking classes at EvCC? **Name at least three things in each category.** What can EvCC do to help you in later quarters here? Be specific in your recommendations.